

Attorney Docket No. 980756D/LH

**IN THE UNITED STATES PATENT
AND TRADEMARK OFFICE**

Applicant(s): Hideyuki MASUYAMA

Serial No. : 09/203,638

Filed : HEREWITH

For : ELECTRONIC CAMERA
FOR MICROSCOPE

Prior
Art Unit : 2878

Prior
Examiner : Thanh X. Luu

**PRELIMINARY AMENDMENT AND
INFORMATION DISCLOSURE STATEMENT**

Assistant Commissioner for Patents
Washington, D.C. 20231

S I R :

Please amend the above-identified application as follows:

IN THE ABSTRACT:

Please replace the abstract with the following:

ABSTRACT OF THE DISCLOSURE

An electronic camera for a microscope includes an imaging element for imaging an optical image split by an optical path split prism, a signal processing section for processing an imaging signal output from the imaging element, a memory section for recording image data based on the imaging signal processed by the signal processing

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Sharon Portnoy

In the event that this Paper is late filed, and the necessary petition for extension of time is not filed concurrently herewith, please consider this as a Petition for the requisite extension of time, and to the extent not tendered by check attached hereto, authorization to charge the extension fee, or any other fee required in connection with this Paper to Account No. 06-1378.

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section, an LCD monitor located near the eyepiece lens for displaying the image based on the imaging signal processed by the signal processing section, and a casing integrally containing all of the imaging element, the signal processing section, the memory section, and the LCD monitor.

IN THE SPECIFICATION

Please replace the paragraph at page 1, lines 8-18 with the following:

As digital techniques have developed, digital photographing has begun to be widely used in the field of a microscopy in recent years. Digital photographing does not require a developing process and thus is advantageous in easily obtaining a photograph as compared with silver salt film photographing. Digitally photographed data, moreover, can be stored as data in a personal computer or the like, and this will never be deteriorated as a negative silver salt film. Further, in the case of silver salt film photographing a specific space needs to be provided for storing the film.

Please replace the paragraph at page 1, lines 19-26 with the following:

The conventional digital photograph has not been as good as a silver salt film in image quality, and thus has not been used very much. But with developments in the quality of an imaging element (CCD), the image quality of digital photographing has been improved to be equal to that of the silver salt film photograph, and thus will be widely spread in the field of microscopy.

Please replace the paragraph beginning at page 2, line 20 through page 3, line 11 with the following:

A signal output from the CCD camera 80 is sent to a television monitor 81 through a cable, and the image can be monitored thereby. The final framing or focusing of the obtained photograph is performed while watching a monitor 81. When the CCD camera 80 is connected not to the television monitor 81 but to a personal computer 82, the image can be directly stored as a file in a personal computer 82. The CCD camera 80 connected to a personal computer 82 can be operated with use of the personal computer 82 through a key board 83. When the CCD camera 80

is connected to the monitor 81, the CCD camera 80 is operated by a handswitch 51 provided thereto. The obtained photograph is stored in a memory device in the CCD camera 80, and can be input into the personal computer by some method, or when the CCD camera 80 is connected to the personal computer, the obtained photograph is directly sent to the personal computer 82 to be stored in a memory device in the personal computer 82.

Please replace the paragraph beginning at page 3, line 12 through page 4, line 1 with the following:

The conventional electronic camera used for the microscope has a problem that the microscope electronic camera has so many systems that a large space is occupied thereby. A microscope that is used for various applications is also connected to various peripheral apparatuses, which results in disorder on a desk and occupation of a large space. When the apparatuses such as the handswitch 51, the personal computer 82, and the key board 83 are further added thereto, the operability on the desk will become worse, of course. In order to obtain an image from the microscope, however, at least the television monitor 81 must be located near the microscope. In other words, if the television monitor 81 cannot be located near the microscope due to the

short of the space on the desk, the framing or focusing in photographing cannot be performed normally.

Please replace the paragraph at page 4, lines 2-9 with the following:

Further, the conventional microscope electronic camera is constituted of many components, and thus has poor flexibility in terms of compatibility and mobility. In such cases, all the components such as the television monitor 81, the personal computer 82, and the key board 83 must be carried to be used with the microscope electronic camera.

Please replace the paragraph at page 4, lines 17-25 with the following:

On the other hand, in observing a specimen with use of a microscope, the microscope will be provided with various filters or optical elements suitable for the object of the observation. When the image obtained by the observation by a microscope is not photographed by an electronic camera, image processings corresponding to the filter or optical element to be executed for the image signal are obtained by the electronic camera, in order to obtain a suitable image.

Please replace the paragraph beginning at page 4, line 26 through page 5, line 12 with the following:

In the white balance correction example of image processing, when a light amount of the illumination light to be applied to the specimen is adjusted to observe a specimen with a light amount suitable for the observation, the white balance correction needs to be executed so as to obtain a predetermined white balance free from the color temperature change of the illumination light due to the light amount adjustment. Accordingly, every time that the color temperature change of the illumination light occurs due to the insertion/extraction of the filter on the optical path of the illumination light or change the light amount of the illumination light source, the white balance is reset therefor to suitably observe the specimen.

Please replace the paragraph beginning at page 6, line 24 through page 7, line 1 with the following:

The object of the present invention is to provide an electronic camera for a microscope, which occupies a small space, which comprises components of a reasonable cost, and which can obtain a digital photograph with ease.

Please replace the paragraph at page 7, lines 2-5 with the following:

The other object of the present invention is to provide an electronic camera for a microscope, which can obtain an optimum image in accordance with an observation condition of the microscope and a specimen.

Please replace the paragraph at page 7, lines 9-15 with the following:

The present invention is an electronic camera attached to a microscope, which integrally includes an imaging element, a signal processing section for processing a signal from an imaging element, a memory for recording photographed image data, and a display for displaying an image obtained by the imaging element.

Please replace the paragraph at page 7, lines 16-24 with the following:

With such a structure, in the microscope electronic camera according to the present invention, the signal from the imaging element is processed by the signal processing section, and displayed by the display integrally provided

thereto. Accordingly, by operating while watching the image of the display means, digital photographing can be attained without providing television monitor or personal computer independent therefrom.

Please replace the paragraph beginning at page 7, line 25 through page 8, line 11 with the following:

The above-mentioned problems can be overcome by the following microscope electronic camera. More specifically, a microscope electronic camera which is attached to a microscope having a function of setting the observation condition of a specimen and which attains an observation image of the specimen by an imaging element comprises:

a recognizing section which when setting of the observation condition in the microscope is changed, recognizes the information the setting of which is changed, and

a signal processing section for processing an image signal output from the imaging element in accordance with information sent from the recognizing section.

Please replace the paragraph beginning at page 13, line 9 through page 14, line 11 with the following:

In this drawing, the LCD color monitor 45 is arranged near the eyepiece lens 31. However, the eyepiece lens 21 and the LCD color monitor 45 of the electronic camera 40 are arranged as shown in FIG. 5 in view of the easiness of the image observation and the operability of the switch and the like. The inclination angle W of the eye-piece barrel 20 is set within a scope from 20 or 30 to 45 degree. The inclination angle U of the display face is set within a scope from 5 or 10 to 25 degree (15 degree in the system of the present embodiment), as mentioned before. In a triangle formed by connecting a first point V1 at which an optical axis 301 (axis along the line of the sight of the observer 90) of the eyepiece lens 21 crosses an axis 302 perpendicular to the display face of the LCD color monitor 45, a second point V2 at which the display face of the LCD color monitor 45 crosses the axis 302, and a third point V3 on the eyepiece lens 21, when an angle X is formed by the optical axis 301 and the axis 302, an angle Y is formed by a line 303 connecting the third point V3 and the second point V2, and an angle Z is formed by the optical axis 301 and the line 303, and where the inclination angle W of the eye-piece barrel 20 is set within a scope from 20 to 45 degree, and the inclination angle U of the LCD color monitor 45 is set within a scope from 5 to 25 degree, the angle X shown in FIG. 5 is set at a value within a scope from 25 to 75.

Please replace the paragraph beginning at page 15, line 27 through page 16, line 5 with the following:

The system controlling section 47 has a CPU 471, a ROM 473 storing an operation program, and a RAM 472 used for operations, which are connected to the bus line 46 independently. A CPU 471 executes various controls of the electronic camera 40 in accordance with operation program stored in the ROM 473.

Please replace the paragraph at page 16, lines 6-8 with the following:

The image data is stored/read in/from the recording medium (memory card) 49 via the bus line 46. The recording medium other than the memory card can also be used.

Please replace the paragraph beginning at page 16, line 16 through page 17, line 3 with the following:

Next, the operation of the apparatus according to the first embodiment, which has the above-mentioned constitution, will be described below. The observation light from the specimen S illuminated by the transmission light or the projection light is collected by the objective lens 6 and incident into an optical path split prism 11 via

a half mirror 8. At this time, the observation light is split into two directions. The observation light in one direction is directed to the eye-piece barrel 20, and directly observed by the observer 90 via the eyepiece lens 21. The observation light traveling in the other direction is guided to the electronic camera 40 through the television camera adapter 30 attached to a mount on an upper portion of a tri-metrogon barrel 10.

IN THE CLAIMS

Cancel claims 1-11, without prejudice.

R E M A R K S

The Abstract and specification have been amended in the same manner as in the parent application Serial No. 09/203,638 of which the present application is a Divisional. A marked-up copy of the pages of the amended specification is submitted herewith. No new matter has been added.

Claims 1-11 have been canceled. The claims remaining in the present application are claims 12-15.

RE. INVENTORSHIP

A separate communication deleting Kenji KARAKI as a named inventor of the present Divisional Application is being submitted concurrently herewith.

RE. PRIORITY CLAIM

Priority (35 USC 119) is claimed based only on Japanese Patent Application No. 10-187501. The priority of Japanese application No. 9-332215 is not being claimed.

INFORMATION DISCLOSURE STATEMENT

Submitted herewith is a Form PTO/SB/08A listing the particulars of the documents cited by the Applicant and Examiner in the parent application, and which were made "of record" in the parent application.

Copies of the publications listed on the attached form PTO/SB/08A are not supplied herewith. As per 37 CFR 1.98(d), which was effective March 16, 1992, copies of publications listed in an Information Disclosure Statement are not required to be provided if the information was cited or submitted in a prior application. The present application properly identifies parent application Serial No. 09/203,638 (Filed: December 1, 1998) and relies upon the prior parent application for an earlier filing date under 35 USC 120.

The above publications listed on the form PTO/SB/08A are all relevant since they are "of record" in the parent application which is directed to similar subject matter.

In addition, also submitted herewith is a copy of Japanese Patent Application KOKAI Publication No. 8-237679 which is also identified on the attached form PTO/SB/08A.

It is respectfully requested that the Examiner consider the publications identified on the attached form PTO/SB/08A and make them of record.

It is further requested that the Examiner return an initialled copy of the attached form PTO/SB/08A to confirm that the publications listed therein have been made of record.

It is respectfully requested that prosecution on the merits now proceed on the basis of the application as amended herewith.

* * * * *

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,



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